Remarks by Dr. James C. Fletcher
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for the

AIAA Panel Discussion

Sheraton Park Hotel
Washington, DC

October 28, 1971

Betty -
Please note changes. I may have to take the article you gave me with in the car to make corrections in the way to the discussion.
JCF.

(SALUTATION ASSUMED. DR. KELLEY IS PANEL CHAIRMAN.)

WE ARE HERE TO DISCUSS THE FUTURE OF THE AEROSPACE PROFESSIONAL. ~~I PROCEED ON THE ASSUMPTION THAT WE AGREE~~ We can all agree that ~~THAT~~ HIS PRESENT ~~PLIGHT~~ predicament -- EITHER UNEMPLOYED OR UNDEREMPLOYED -- HAS A DOUBLE IMPACT. IT IS A TRAUMATIC EXPERIENCE FOR THE INDIVIDUAL SPECIALIST, AND AN UNACCEPTABLE WASTE OF A VALUABLE NATIONAL ASSET. EQUALLY IMPORTANT, THE PRESENT EXODUS OF ENGINEERING AND SCIENCE STUDENTS FROM THE AEROSPACE FIELDS -- WILL LEAVE US DEPLORABLY SHORT OF PROFESSIONALS 15 YEARS DOWNSTREAM.

~~IN MY OPINION~~ WE FACE NOT SIMPLY A PROBLEM, BUT A CRISIS -- AND NOT JUST AN INDUSTRY CRISIS, BUT A NATIONAL CRISIS.

I HAVE NO READY-MADE SOLUTIONS TO OFFER, NOR DO I KNOW ANYONE WHO DOES. BUT IN THE NEXT FEW MINUTES, I HOPE TO OFFER FOR YOUR CONSIDERATION AND DISCUSSION SOME POSSIBLE STARTING POINTS.

CLEARLY THE SOCIETY OF THE FUTURE WILL BE A HIGH-TECHNOLOGY STRUCTURE WHICH WILL REQUIRE A POOL OF EXPERIENCED AND INNOVATIVE PROFESSIONALS TO COPE WITH THE MORE COMPLEX

WE DON'T HAVE TO LOOK FAR FOR THE REASONS. RECENT GRADUATES -- INSTEAD OF CHOOSING FROM MULTIPLE JOB OFFERS AS THEY WERE THREE OR FOUR YEARS AGO -- ARE ENCOUNTERING A TIGHT EMPLOYMENT MARKET. AN MIT SURVEY OF 3,200 RECENT RECIPIENTS OF DEGREES IN PHYSICS REVEALED THAT ONLY HALF WERE ABLE TO FIND JOBS. SIX HUNDRED WERE UNEMPLOYED AND THE REMAINDER WENT ABROAD, SEEKING OTHER OPPORTUNITIES.

FURTHER, THERE ARE REPORTS THAT R&D SCIENTISTS AND ENGINEERS, DISENCHANTED WITH PROSPECTS IN THIS COUNTRY, ARE ACCEPTING OFFERS TO WORK IN FOREIGN NATIONS: ISRAEL, WEST GERMANY AND AUSTRALIA ARE OFTEN MENTIONED. HOW MUCH SUBSTANCE THERE IS TO THESE REPORTS IS DIFFICULT TO DETERMINE, AS IS THE NUMBER OF PROFESSIONALS WHO MAY BE INVOLVED. BUT IT WOULD HARDLY BE SURPRISING IF THERE WERE "FIRE BEHIND THIS SMOKE." SOMETHING IS SERIOUSLY ~~AWRY~~ wrong WHEN THE WORLD'S MOST TECHNOLOGICALLY ADVANCED NATION IS INCAPABLE OF UTILIZING THE TALENTS OF ITS MOST GIFTED PEOPLE.

IT IS IRONIC THAT THIS DE-EMPHASIS OF THE AEROSPACE DISCIPLINES WILL HAVE ITS SHARPEST IMPACT DURING THE NEXT PEAKING OF R&D -- PROJECTED FOR 1985 -- WHEN SPECIALISTS WITH FIFTEEN YEARS EXPERIENCE WILL BE SORELY NEEDED AT THE UPPER MIDDLE MANAGEMENT LEVEL.

THESE PAGES

WERE MISSING

FROM THE DOCUMENT

AT THE TIME

OF SCANNING

MARKET FOR HIGH TECHNOLOGY GOODS -- THOUGH STILL DOMINANT -- IS SLIPPING. WHILE HIGH WAGE LEVELS ARE A FACTOR HERE, A TECHNOLOGICAL SLOWDOWN IS CHIEFLY RESPONSIBLE. IT IS NO COINCIDENCE THAT THOSE WHO ARE CROWDING US HARDEST -- WEST GERMANY AND JAPAN -- ARE INVESTING IN PRIVATE R&D TO THE TUNE OF 2.7 PER CENT AND 2.2 PER CENT, RESPECTIVELY, OF THEIR GNP. THE COMPARATIVE FIGURE FOR THE UNITED STATES IS 1.6 PER CENT. ~~THE EFFECT ON OUR INTERNATIONAL BALANCE OF PAYMENTS -- AND ON THE DOMESTIC ECONOMY -- HARDLY NEEDS COMMENT.~~ THIS LOW FIGURE USED TO BE BLAMED ON THE OVERABSORPTION OF ENGINEERS INTO MILITARY AND SPACE PROGRAMS BUT THE CONDITION IS STILL MAINTAINED, EVEN THOUGH (12%) IN THE AEROSPACE INDUSTRY ARE NOW UNEMPLOYED!

THUS THE PROBLEM OF THE AEROSPACE PROFESSIONAL IS A PART OF A LARGER -- AND MORE SERIOUS -- PROBLEM.

(IN MY VIEW) WHAT IS NEEDED IS A MIX OF ACTIONS THAT DEAL WITH THE VARIOUS FACETS OF THE PROBLEM. RETRAINING FOR THE PROFESSIONAL WHOSE SPECIALITY IS TOO NARROW TO HAVE NON-AEROSPACE APPLICATIONS SHOULD BE AVAILABLE. OTHERS WITH MORE GENERAL SKILLS MIGHT BENEFIT FROM A RE-ORIENTATION. THE PILOT EFFORT IN THIS AREA OUGHT TO PROVIDE THE EXPERIENCE WHICH WILL ENABLE THIS TO BE DONE EFFECTIVELY ON A BROADER SCALE. BUT THE LIMITATIONS INHERENT IN THESE PROGRAMS MAKE THEM LITTLE MORE THAN PALLIATIVES.

Betty - I'll have to check this figure from the article you gave me on Wed. - [illegible]

IF THE ABSORPTIVE CAPACITY OF THE INDUSTRIAL COMMUNITY IS TO BE EXPANDED TO THE POINT WHERE IT CAN OFFER A SUBSTANTIAL NUMBER OF AEROSPACE PROFESSIONALS -- THE "DISPLACED PERSONS" IN OUR ECONOMY -- A CHANCE TO APPLY THEIR SKILLS, SOME INCENTIVE WILL HAVE TO BE DEVISED. INDUSTRIES WHICH THUS FAR HAVE CONCENTRATED ON AEROSPACE SHOULD BE ENCOURAGED TO INVESTIGATE PROBLEM AREAS SUCH AS TRANSPORTATION, HOUSING, OR POLLUTION CONTROL TO DETERMINE HOW THEIR SPECIAL SKILLS, MANAGEMENT TECHNIQUES, AND ABILITY TO INNOVATE CAN BE APPLIED IN A COMMERCIALLY PRODUCTIVE MANNER, AND CONTRIBUTE TO A SOLUTION OF THESE PROBLEMS. (THIS CAPABILITY WITH APPROPRIATE GOVT.

IF AN INDUSTRY COULD DEMONSTRATE ~~ON ITS OWN INITIATIVE~~, ~~THIS CAPABILITY~~ BACKING, IT WOULD THEN MAKE SENSE TO CONSIDER A BROADER EXPLORATION OF THIS KIND WITH ~~FEDERAL BACKING~~ SUBSTANTIAL SUPPORT, ~~PERHAPS~~ INCLUDING RESEARCH CONTRACTS INTO AREAS WHERE NO PRIVATE FIRMS WERE OPERATING.

CERTAINLY NASA'S EXPERIENCE WITH AEROSPACE PROFESSIONALS IS THAT THEY HAVE THE REQUIRED TECHNICAL SKILLS AND ADMINISTRATIVE EXPERIENCE TO MANAGE PROGRAMS SUCCESSFULLY ON A NATIONAL SCALE. THE APOLLO PROGRAM SERVES AS A BASIC MODEL FOR EVERY KIND OF A NATIONAL EFFORT OF MAJOR DIMENSION. IT SET A GOAL. IT SET A TIME. IT SET A COST. IT CAME THROUGH ON TIME, ON COST, AND MET THE GOAL.

AN OTHER INCENTIVE THAT NEEDS OUR SERIOUS CONSIDERATION IS THE PROPOSAL TO OFFER A TAX CREDIT FOR INCREASED INVESTMENT BY PRIVATE INDUSTRY IN RESEARCH AND DEVELOPMENT -- R&D THAT IS NOT FEDERALLY FUNDED. JOHN MORRISEY OF THE NATIONAL AERONAUTICS AND SPACE COUNCIL, A PROPONENT OF THIS PROPOSAL, CALCULATES THAT INVESTMENT IN R&D HAS A GREATER IMPACT ON PRODUCTIVITY THAN CAPITAL INVESTMENT. ~~A THREE PER CENT~~ INCREASE IN R&D ~~PRODUCES~~ sectors A ONE PERCENT INCREASE IN PRODUCTIVITY, AND EVERY ~~$100 MILLION EXPANSION IN R&D WOULD GIVE~~ ULTIMATELY 1,200 ~~SCIENTISTS~~ AND ENGINEERS THE OPPORTUNITY TO USE ~~THEIR~~ SKILLS ~~IN THE SERVICE OF SOCIETY AND INDUSTRY~~. THIS PROGRAM IN THE LONG RUN COULD GREATLY AID THE PRIVATE SECTOR WHILE ACCOMPLISHING THE DUAL PURPOSE OF INCREASING PRODUCTIVITY AND PROVIDING MEANINGFUL EMPLOYMENT FOR R&D PROFESSIONALS, SUCH A TAX CREDIT -- IF IT HAD THE SAME IMPACT THAT A SIMILAR CREDIT FOR CAPITAL INVESTMENT HAD IN THE EARLY 1960's -- WOULD ALLOW THE TREASURY TO RECOUP ITS LOSSES FROM AN EXPANDED GNP TAX BASE.

FOR OUR ECONOMY

~~PERHAPS, MOST IMPORTANT OF ALL IS TO AVOID THE PERSISTENT~~ BUT WORSENING TREND TOWARDS ~~PEAKS AND VALLEYS~~ IN AEROSPACE ~~SPENDING, PARTICULARLY BY THE FEDERAL GOVERNMENT~~. WE ARE TRYING VERY HARD AT NASA TO TURN THE CORNER-- THAT IS TO AVOID A FURTHER REDUCTION IN NASA SPENDING. THERE IS SYMPATHY WITH THIS EFFORT FROM MANY QUARTERS.

SOMETHING MUST BE DONE IN THE NEAR TERM HOWEVER TO AVOID THE DISASTROUS PREDICTIONS FOR 1987

THE PRESIDENT, FOR EXAMPLE, HAS CHARTED THE FUTURE COURSE OF THE SPACE PROGRAM IN HIS STATEMENT LAST SPRING. I AM SURE YOU ARE ALL FAMILIAR WITH THE SIX POINTS IN HIS PROGRAM. I BELIEVE, AS WELL, THAT HE IS AWARE OF THE PROBLEMS FACING THE AEROSPACE INDUSTRY, AND THE PROFESSIONAL WHO IS UNABLE TO FIND FULL EMPLOYMENT FOR HIS TALENTS. AEROSPACE -- AND THE REST OF INDUSTRY -- HAS A WELL-EARNED REPUTATION FOR INNOVATION AND INGENUITY. A VIGOROUS APPLICATION OF THESE QUALITIES TO THE INDUSTRY'S PROBLEMS SHOULD RESULT IN CONSTRUCTIVE PROPOSALS FOR THEIR SOLUTION -- PROPOSALS WHICH WOULD SURELY RECEIVE A SYMPATHETIC HEARING IN WASHINGTON.

TO RETURN TO THE SPECIFIC QUESTION WHICH IS CENTRAL TO OUR DISCUSSION -- THE FUTURE OF THE AEROSPACE PROFESSIONAL -- I AM AN OPTIMIST. IN THE LONG RANGE, I THINK HIS FUTURE IS BRIGHT. HOWEVER, HOW SOON THIS FUTURE IS REALIZED DEPENDS HEAVILY ON WHAT WE CAN DO IN THE NEXT YEAR OR TWO TO ACHIEVE A REVERSAL OF THE DOWNWARD TREND IN AEROSPACE R&D, ~~AND IN OTHER R&D~~, WHICH HAS MADE ~~HIS~~ Aerospace TALENTS SURPLUS. I HOPE OUR DISCUSSION TODAY WILL SET SOME GUIDELINES FOR ACTION.